What is Theory?

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What is a Theory?

Scientific research is an integral part of various discoveries and inventions. This very research gives birth to many theories that are then tested again and again in repetitive experimentation and are proven to be authentic and valid 1. It is wholly dependent on the context. If you are talking about Standard English usage, a theory is synonymous with a guess, a conjecture or a hypothesis. In this sense, a theory does not have to be supported by any evidence whatsoever.

When talking about a scientific theory, on the other hand, it is actually defined as “a coherent group of tested general propositions, commonly regarded as correct, that can be used as principles of explanation and prediction for a class of phenomena.” Note the keyword “tested” as well as the fact that theories can be used to explain and predict things 2.

Unfortunately, a lot of people fail to make the distinction and claim that well-tested theories such as the Theory of Evolution by Natural Section can be safely dismissed as mere guesswork since they are “just” theories. Again, though, a scientific theory is one that has been tested and has been shown to be able to both explain and predict observed phenomena.

Some authorities, like the National Center for Science Education, insist that it must actually have successfully explained a large body of observations, but it seems to me that's a wild overreaction to creationists insisting that it never means more than an unsubstantiated hypothesis. Actual usage runs the gamut from hypotheses to rock-solid ideas. A *successful* theory explains a large body of observation but a failed theory like phlogiston doesn't suddenly stop being a theory.

If there's anything that ought to be disqualifying, it's hopeless vagueness, so that it doesn't logically entail anything in particular, or gratuitous unfalsifiability, so that it's so armed with all-purpose excuses that the predictions it seems to make are all deniable after the facts are in. But even then it wouldn't be odd to speak of an unfalsifiable theory.

End Notes

1. Fletcher, D. and Sarkar, M., 2013. Psychological resilience: A review and critique of definitions, concepts, and theory. *European psychologist*, *18*(1), p.12.
2. Southwick, S. M., Bonanno, G. A., Masten, A. S., Panter-Brick, C., & Yehuda, R. (2014). Resilience definitions, theory, and challenges: interdisciplinary perspectives. *European journal of psychotraumatology*, *5*(1), 25338.